

CLAIMS

1. A method for manufacturing a polymer alloy, comprising the step of melt blending at least two resins used as components miscible under such shear flow as caused by the shear rate kept in a range from 100 to 10000 sec⁻¹ and capable of being separated into phases under no shear flow, for making the resins miscible and subsequently inducing spinodal decomposition to cause phase separation, for forming a co-continuous structure with a wavelength of concentration fluctuation of 0.001 to 1 μm or a dispersed structure with a distance between particles of 0.001 to 1 μm .
2. A method for manufacturing a polymer alloy, according to claim 1, wherein in the early stage of said spinodal decomposition, a co-continuous structure with a wavelength of concentration fluctuation of 0.001 to 1 μm is formed.
3. Polymer alloy pellets, comprising at least two resins contained as components immiscible under no shear flow, wherein the said at least two resins contained as components are made miscible.
4. Polymer alloy pellets, according to claim 3, wherein said at least two resins contained as components are a thermoplastic polyester resin and a polycarbonate.
5. Polymer alloy pellets, according to claim 4, wherein said thermoplastic polyester resin is polybutylene terephthalate.
6. Polymer alloy pellets, comprising at least two resins contained as components, wherein the at least two resins contained as components form a co-continuous structure with a wavelength of concentration fluctuation of 0.001 to 1 μm or a dispersed structure with a distance between particles of 0.001 to 1 μm .
7. Polymer alloy pellets, according to claim 6, wherein said at least two resins are a thermoplastic polyester resin and a polycarbonate.

8. Polymer alloy pellets, according to claim 7, wherein said thermoplastic polyester resin is polybutylene terephthalate.

9. A polymer alloy film or sheet, comprising at least two resins contained as components, wherein the at least two resins contained
5 as components form a co-continuous structure with a wavelength of concentration fluctuation of 0.001 to 1 μm or a dispersed structure with a distance between particles of 0.001 to 1 μm .

10. A polymer alloy film or sheet, according to claim 9, wherein a co-continuous structure with a wavelength of concentration
10 fluctuation of 0.001 to less than 0.01 μm or a dispersed structure with a distance between particles of 0.001 to less than 0.01 μm is formed.

11. A polymer alloy film or sheet, according to claim 10, wherein said co-continuous structure or dispersed structure is formed by
15 the phase separation caused by the spinodal decomposition induced in the at least two resins contained as components.

12. A polymer alloy film or sheet, according to claim 9, wherein said at least two resins contained as components are polybutylene terephthalate and a polycarbonate.

20 13. A molded polymer alloy article, comprising at least two resins contained as components, wherein the at least two resins contained as components form a co-continuous structure with a wavelength of concentration fluctuation of 0.001 to 1 μm or a dispersed structure with a distance between particles of 0.001 to 1 μm .

25 14. A molded polymer alloy article, according to claim 13, wherein said molded polymer alloy article is a molded article obtained by injection molding.

15. A molded polymer alloy article, according to claim 13, wherein said at least two resins contained as components are polybutylene
30 terephthalate and a polycarbonate.

16. A polymer alloy, comprising polybutylene terephthalate and a polycarbonate, and forming a co-continuous structure with a wavelength of concentration fluctuation of 0.001 to 1 μm or a dispersed structure with a distance between particles of 0.001 to 5 1 μm .

17. A polymer alloy, according to claim 16, wherein said co-continuous structure or dispersed structure is formed by the phase separation caused by the spinodal decomposition.

18. A polymer alloy, according to claim 16, wherein said polymer 10 alloy is miscible when the shear rate is kept in a range from 100 to 10000 sec^{-1} , and is separated into phases under no shear flow.

19. A polymer alloy, comprising polyphenylene sulfide resin and a polyester resin with polyethylene terephthalate as a main component, and forming a co-continuous structure with a wavelength 15 of concentration fluctuation of 0.001 to 2 μm or a dispersed structure with a distance between particles of 0.001 to 2 μm .

20. A polymer alloy, according to claim 19, wherein said co-continuous structure or dispersed structure is formed by the phase separation caused by the spinodal decomposition.

21. A polymer alloy, according to claim 20, wherein said polymer 20 alloy is miscible when the shear rate is kept in a range from 100 to 10000 sec^{-1} , and is separated into phases under no shear flow.